Sage Fire

BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION (ESR) PLAN

AGENCY/UNIT: U.S. Fish and Wildlife Service, Deer Flat National Wildlife Refuge

LOCATION: Nampa, Canyon County, Idaho

DATE: August 11-13, 2003

PREPARED BY: W. Wayne Patton and an ESR team of U.S. Fish and Wildlife Service Personnel

Submitted By: W. Wayne Patton, ESR/BAER Team Leader Date: August 15, 2003

REVIEW AND APPROVAL

U.S. Fish and Wildlife Service

I. Suppression Related Rehabilitation Approval (check one box below):

- ☐ Approved
- ☐ Approved with Revision (see attached)
- ☐ Disapproved

Refuge Manager, Deer Flat National Wildlife Refuge Date

II. Emergency Stabilization and Rehabilitation (ESR) Review (check one box below):

- ☐ Concur
- ☐ Concur with Recommendations (see attached)
- ☐ Do not Concur

Refuge Manager, Deer Flat National Wildlife Refuge Date

III. Emergency Stabilization and Rehabilitation (ESR) Review (check one box below):

- ☐ Concur
- ☐ Concur with Recommendations (see Attached)
- ☐ Do not Concur

Regional Fire Management Coordinator, Region 1, U.S. Fish and Wildlife Service Date

IV. Emergency Stabilization and Rehabilitation (ESR) Approval (check one box below):

- ☐ Approved
- ☐ Approved with Revision (see attached)
- ☐ Disapproved

Regional Director, Region 1, U.S. Fish and Wildlife Service Date

EXECUTIVE SUMMARY

Introduction

This plan has been prepared in accordance with specify agency policy. This plan provides burned area emergency stabilization and rehabilitation (ESR) recommendations for all lands burned within the Sage Fire perimeter and downstream impact areas including public lands administered by the U.S. Fish and Wildlife Service, Deer Flat National Wildlife Refuge. The primary objectives of the Sage Fire Burned Area Emergency Stabilization and Rehabilitation Plan are:

Emergency Stabilization

- To prescribe cost effective post-fire stabilization measures necessary to protect human life, property, and critical cultural and natural resources.
- To promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter or downstream impact areas and mitigate damages caused by fire suppression operations in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

Rehabilitation

- To repair or improve lands unlikely to recover naturally from severe wildland fire damage by emulating historic or pre-fire ecosystem structure, function, diversity, and dynamics according to approved land management plans.
- Restore or establish healthy, stable ecosystems, even if these ecosystems cannot fully emulate historic or pre-fire conditions as specified in approved land management plans.

This plan addresses emergency stabilization and rehabilitation of fire suppression and fire damage. The ESR Team conducted an analysis of fire damage. The watershed assessment group assessed the overall watershed changes caused by the fire and developed a burn severity map. The archeologist inventoried suppression impacts for potential damage to cultural sites as well as assessing the need for a cultural resource damage assessment. The vegetation specialist evaluated and assessed fire damage and suppression impacts to vegetation, including threatened and endangered (T and E) species, and identified values at risk associated with vegetative losses. The wildlife biologist initiated and closed Section 7 consultations with the U.S. Fish and Wildlife Service**.** The operations specialists inventoried the fire suppression impact and developed specifications for rehabilitation.

Individual resource Burned Area Assessment Reports produced by these specialists are in Appendix I. The individual treatment specifications including the effectiveness monitoring identified in the assessments can be found in Part F. A summary of the costs is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains the ESR Plan maps. Appendix IV contains photo documentation. Appendix V contains supporting documentation.

Fire Background

The Sage Fire started during the very early morning of July 5, 2003, with fireworks being the probable cause. Initial response was made by the Nampa Fire Department with help from Caldwell, Parma, and

Star Fire Departments, and the Bureau of Land Management (BLM). All these agencies sent personnel and various equipment. The Deer Flat Refuge engine also participated. For a time, the Refuge visitor center was at risk but lines stopped the fire from burning to the south and west. The fire was originally declared controlled at 02:48:17 on July 5. However, winds increased and caused the fire to flare up toward the East where it crossed the fire line. A plow line was dug around the fire and it was contained at about 04:45. The BLM arrived at 04:45 with two large engines and a command vehicle. They requested continued help from the Nampa Department. The fire was officially handed over to BLM at 05:12:50. The BLM mopped up until the Sage Fire was declared controlled on July 6 at 1400 hrs. Management of the Sage Fire showed that the agreement between the Deer Flat National Wildlife Refuge and the BLM is working, although it took the BLM a little long to respond. Due to the flashy fuels on the Refuge, response times should be minimized.

Since records started in 1941, there have been about 86 human-caused fires and of these, six have been attributed to fireworks. The flashy cheat grass fuels added to the incendiary nature of the area. The cause was not unusual for the Refuge and as long as cheat grass prevails, fires will start more frequently and will burn larger areas of native shrubs and grasses. Native grasses, forbs, and shrubs which stay green later in the summer should be seeded to reduce fire danger.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

Hand lines and plow lines make up about 12% of the burned area or about 10.3 acres of disturbed land. There is no need to use water-bars on these lines as the burned area is not steep enough to result in rilling or gullying. However, the lines will need to be revegetated to slow cheat grass invasion. This seeding will be done with a rangeland drill and using the same seed as the rest of the burned area. Therefore, 12% of the seeding cost ($3,446.95) will be charged to fire suppression.

Pre fire vegetation was scattered sage brush, occasional native grasses and a lot of cheat grass (an invasive, non-native species) and bulbous blue grass. Without treatment, post fire vegetation will be a solid stand of cheat grass with very sparse clumps of Great Basin wildrye along with assorted weeds. Cheat grass will dominate the site thereby side-tracking natural succession to native grassland. With treatment, native grasses and shrubs can be established which will benefit natural plant succession toward a climax plant community. Recommended treatments include cheat grass control with an herbicide, seeding with a rangeland drill on the contour and follow-up with straw spreading and crimping to conserve moisture on the site. Drilling will break up hydrophobic (water repellent) layers in the soil causing potential runoff to soak into the ground rather than impacting the road system or running into Lake Lowell. The seeded species will be more wildlife friendly than cheat grass. A close look at weeds in and around the burned area shows that noxious and invasive weeds are likely to invade the burned area. Cheat grass will be sprayed with an herbicide to aid in establishment of native grasses and shrubs. Other weeds, included spotted knapweed, Canadian thistle, bindweed, and others will be monitored and if they occur, additional action will be taken to control them.

Soil and watershed analysis shows that soils on 8 to 12% slopes in burned condition can produce enough runoff to carry soil, trash and ash across the road system to Lake Lowell which is about 400-500 feet below the burned area. This could happen as the result of a 2 year, 30 minute rainfall event of .60 inches. This rainfall event has a 50% chance of occurring each year for a 4 year period. At the end of which the burned area has healed enough to allow water to soak in faster. Proposed treatment is to construct three

straw bale silt fences immediately upslope from the roads to slow the water down and cause the load of sediment and ash to fall out. This should prevent runoff containing sediment, ash, phosphorus, and nitrogen from reaching Lake Lowell. The passing of the rangeland drill during seeding will penetrate the hydrophobic soil layer, slow surface flow and give the water a better chance to soak into the soil where it will do the most good. Top soil has been lost off of four areas that are listed as calcareous inclusions on the soil map. Additional soil loss to surface flow will increase these areas if treatment is not implemented. Recommended treatment is revegetation with crested wheat grass. This non-native grass, much of which is already growing in the area, is the only plant with available seed that can tolerate the high levels of salt on these sites. The native grass mix recommended for the rest of the burned area would not survive in these harsh conditions.

Archeologist Carla Burnside visited the burned area and determined that no further action is needed (see archeologist report). In fact, the archeologist recommended removal of 1950's era trash that covers some areas, especially the rolls of barbed wire that can interfere with operation of the rangeland drill.

Review of the plants and animals in the area show that no T and E species are present. Likewise, none of the recommended treatments will trigger NEPA beyond the Categorical Exclusion.

Sage Fire Burned Area Management Requirements

There are no issues that could negatively affect carrying out the emergency actions recommended in this plan. There are no T and E species present. The archeologist has surveyed the area and determined that no action is needed except for removal of scattered garbage apparently dumped in the 1950's. The Refuge has submitted a Pesticide Use Proposal for the use of the herbicide *Plateau.* This herbicide is in widespread use to reduce competition from cheat grass following wildfire, so use of *Plateau* should be approved. All seed and straw should be certified weed-free prior use. It is recommended that seed be tested by the Idaho State Seed Laboratory. Recommended actions are consistent with goals and objectives for management of the Refuge covered in the Refuge Management Plan for the Deer Flat National Wildlife Refuge in 1995.

TABLE OF CONTENTS

PART A - FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Sage Fire
Fire Number	14560-9261-A410
Agency Unit	U.S. Fish and Wildlife Service-Deer Flat Wildlife Refuge
Region	Region 1
State	Idaho
County(s)	Canyon County
Ignition Date/Cause	Possible Fireworks
Zone	Columbia Basin Eco Region
Date Contained	July 5, 2003 @ 0400 hrs.
Jurisdiction	U.S. Fish & Wildlife Service
other jurisdictions	None
Total Acres	86 acres
Date Controlled	July 6, 2003 @ 1400 hrs.

PART B - NATURE OF PLAN

I. Type of Plan (check one box below)

X	Emergency Stabilization
	Rehabilitation
	Both Emergency Stabilization and Rehabilitation

II. Type of Action (check one box below)

	Initial Submission
X	Updating or Revising the Initial Submission
	Supplying Information of Accomplishment to Date on Work
	Different Phase of Project
	Final Accomplishment Report (To Comply with the Closure of the 9262 Account)

PART C - EMERGENCY STABILIZATION AND REHABILITATION ASSESSMENT

Emergency Stabilization Objectives

- Locate and stabilize severely burned slopes which pose a direct threat to human life, property or critically important cultural and/or natural resources.
- As practical and necessary, restore natural conditions to areas disturbed by fire suppression actions.
- Decide if revegetation is necessary and determine what mix of seeds to use.
- Prevent the establishment of non-native invasive plants.
- Prevent takeover of burned sites by cheat grass (*Bromus tectorum*) and other invasive weeds before seeded grasses can become established.

Rehabilitation Objectives

- Rehabilitate former cheat grass areas with native shrubs, sage brush, four-wing salt brush and bitter brush as specified in the refuge's approved Management Plan. This will be accomplished at the same time and with the same treatment as recommended for emergency stabilization. No recommended treatment is for rehabilitation alone.

PART D - TEAM ORGANIZATION, MEMBERS, AND RESOURCE ADVISORS

I. Approval Authorities

Activities Requiring Local Agency Administrator Approval Fire Suppression Damages (charged to Fire Suppression)		
Hand Line, Plow Line treatment and seeding	P	3,446.95
Subtotal		3,446.95

Status: C=Completed; O=Ongoing; P=Planned

Activities Requiring Regional/State/Headquarters Approval Emergency Stabilization and Rehabilitation (charged to ESR)		
Straw Bale Silt Fence	P	2,827.24
Storm Patrol	P	1,044.00
Water Quality Monitoring	P	5,884.92
Revegetation	P	25,277.61
Invasive Plant Control	P	1,544.25
Monitor Seeding Effectiveness and Invasive Plant Control	P	3,700.00
Subtotal		40,278.02

Status: C=Completed; O=Ongoing; P=Planned

Total Emergency Stabilization and Rehabilitation Costs	43,724.97

II. Burned Area Emergency Stabilization and Rehabilitation (ESR)Team Members: *(List of technical specialists used to develop the plan)*

Position	Team Member (Agency)
Team Leader	W. Wayne Patton (Contractor-Retired Forest Service)
Public Information	Elaine Johnson, Susan Kain (FWS)
Operations	Todd Fenzl (FWS)
NEPA Compliance & Planning	Elaine Johnson (FWS)
Hydrologist	W. Wayne Patton
Soil Scientist	W. Wayne Patton
Geologist	
Cultural Resources/Archeologist	Carla Burnside (FWS)
Vegetation Specialist	W. Wayne Patton
Wildlife Biologist	Todd Fenzl, Elaine Johnson
GIS Specialist	Bob Kibler (FWS)
Documentation/Computer Specialist	W. Wayne Patton
Photographer	Lance Roberts, Zone FMO (FWS)
Other Technical Specialists	Todd Fenzl

III. Resource Advisors: (Note: Resource Advisors are individuals who assisted the ESR Team with the preparation of the plan. See Part H for a full list of agencies and individuals who were consulted or otherwise contributed to the development of the plan.

Name	Affiliation
Elaine Johnson	Refuge Manager, Deer Flat National Wildlife Refuge
Todd Fenzl	Deputy Refuge Manager, Deer Flat National Wildlife Refuge

PART E - SUMMARY OF ACTIVITIES AND COSTS

The summary of activities and cost tables identifies emergency stabilization and rehabilitation costs charged or proposed for funding from Suppression Operations, Burned Area Rehabilitation, agency operation, and other funding sources. Expenditures are displayed in the total cost column. They are coded with the appropriate cost authority. The total cost of the rehabilitation effort to date, excluding the costs absorbed by the fire account (fire crews, labor, and associated overhead) is displayed as either Suppression Operations (F), Burned Area Rehabilitation (BAR), Emergency Watershed Protection (EWP), or Agency Operations/Other (O/OP) or other.

Fire Name: Sage Fire

As of August 15, 2003

Specification Cost Summary

Account	Dollars	Dollars
Fire Suppression Activity Damage Rehabilitation (F)		3,446.95
Burned Area Rehabilitation (BAR)		$0
Emergency Stabilization	$	40,098.02
Rehabilitation	$	
Emergency Watershed Protection (EWP)		
Agency Operations/Other (OP/O)		
Funding Summary - Estimated Total		$43,544.97

PART E - SUMMARY OF EMERGENCY STABILIZATION ACTIVITIES - COST SUMMARY TABLE – Sage Fire

Spec #	Title	Unit	Unit Cost	# of Units	Cost by Funding Source				Implementation Method	Specification Total
					F	BAR	EWP	OP/O		
#1	Straw Bale Silt Fence	Feet	2.36	1120		2,647.2			P	2,647.24
#2	Storm Patrol	Ea	58.00	18		1,044.00			P	1,044.00
a #3	Water Quality Monitoring	Ea	490.41	12		5,884.92			P/C	5,884.92
1, #4	Revegetation	Acres	334.00	86	3,446.95	25,277.61			C	28,724.56
#5	Monitor Seeding Effectiveness and Invasive Weed Encroachment	Acres	1,233.33	3		3,700.00			C	3,700.00
#6	Invasive Plant Control	Survey	17.96	86		1,544.25			C	1,544.25
TOTAL COST					$ 3,446	$ 40,098.0	$	$		$43,544.97

COST: F1=Suppression Operations, BAR=Burned Area Rehabilitation, EWP=Emergency Watershed Protection, OP/O=Agency Operations Funding, Other **METHOD**: FC=Crew Assigned to Fire, C=Contract, EFC=Emergency Fire Contract, P=Agency Personnel

PART E - SUMMARY OF REHABILITATION ACTIVITIES - COST SUMMARY TABLE - Sage Fire

Spec #	Title	Unit	Unit Cost	# of Units	Cost by Funding Source		Implementation Method	Specification Total
					BAR	OP/O		
	N/A							*$*
TOTAL COST					$	$		$

COST: BAR=Burned Area Rehabilitation, OP/O=Agency Operations Funding, Other **METHOD**: FC=Crew Assigned to Fire, C=Contract, EFC=Emergency Fire Contract, P=Agency Personnel

PART F - INDIVIDUAL TREATMENT SPECIFICATIONS

SPECIFICATION TITLE:	**STRAW BALE SILT FENCE**	**AGENCY:**	FISH AND WILDLIFE SERVICE DEER FLAT NATIONAL REFUGE
PART E LINE ITEM:	#1. Straw Bale Silt Fence ESR Reference #: 6.21.1 Surface Stabilization and Prevention Strategy	**FISCAL YEAR(S) (list each year):**	2004/2005 SPEC TYPE: ES

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description: Install fences of weed-free straw bales to filter out sediments which could impact roads and run into Lake Lowell.

B. Location/(Suitable) Sites: Locations are shown on the Watershed Treatments Map – Appendix III. Straw bale silt fences were located where they will catch sediment about to wash over roads and into Lake Lowell. Fences are located at points where runoff from erodible areas would concentrate.

C. Design/Construction Specifications:

1. Bales: Use straw bales certified as weed-free by the State of Idaho.
2. Installation: Place straw bales end-to-end in a tight row. Dig a 7 inch trench on uphill side of the fence and bury the end of filter fabric. Stake this end of the fabric in the trench and cover with soil. Lap the fabric on uphill side of bale and stake down on top of the bale. Stake the bales in place with 18 inch grade stakes driven through the bales. The fences should follow the contour and be turned up slightly at the ends.

D. Purpose of Treatment Specifications: To filter sediments out of water flowing toward roads and Lake Lowell.

E. Treatment Effectiveness Monitoring Proposed: Monitor the silt fences after the first several storm events. Check that no concentrated water flows are escaping between bales or around the ends. Repair and reinforce as necessary.

II. LABOR, MATERIALS AND OTHER COST:

✍ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
Initial installation: 3 person crew GS 6 @ $13.72/hr X 21 hrs = $288.12 WG 8 @ $18.00/hr x 21 hrs = $378.00 GS 4 @ $11.72/hr x 21= $246.12	912.24
Follow-up, remedial staking and placement of additional silt fences: WG 8 @ $18.00/hr x 10 = $180.00	180.00
TOTAL PERSONNEL SERVICE COST	1,092.24
✍ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST/ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
✍ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST/ITEM**
Straw Bales @ $3.50 each x 230 = $805.00 Wood Stakes @ 2.50 each x 300 = $750.00	1,555.00
TOTAL MATERIALS AND SUPPLY COST	1,555.00
✍ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL TRAVEL COST	
✍ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04 construct	Feet	2.68	920	2,467.24	BAR	P
FY_05 maintain	Feet	.9	200	180.00	BAR	P
FY__						
FY__						
FY__						
TOTAL		**3.58**	**1120**	**2,647.24**		

FUNDING SOURCE
F - Suppression Operations
BAR - Burned Area Rehabilitation
EWP - Emergency Watershed Protection
OP/O - Agency Operations/Other

METHODS
P - Agency Personnel Services
C - Contract (long-term)
EFC - Emergency Fire Contract (short-term)
FC - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	X
4. Estimates based upon government wage rates and material cost.	X
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within ESR Plan Accomplishment Report (for Rehabilitation treatments quote (include page number, approving officials name, and date approved for review and auditing purposes) pertinent passages from approved land management plans:

SPECIFICATION TITLE:	**STORM PATROL**	**AGENCY:**	FWS
PART E LINE ITEM:	# 2 Storm Patrol ESR Reference #: 6.21.2 Property Protection Strategy	**FISCAL YEAR(S) (list each year):**	2004, 2005, 2006 Spec Type: ES

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description: Check straw bale silt fences to make sure they are functioning as designed.

B. Location/(Suitable) Sites: Along paved road leading to Visitor Center and along dirt service road to the west of the Visitor Center.

C. Design/Construction Specifications:

1. Patrol paved road leading to Visitor Center and along dirt service road to the west of the Visitor Center.

2. Inspect straw bale silt fences to make sure they are not full or that water is not moving through or around them. Make sure there is no sediment on the roads and that roads are not compromised by mud or down-cutting.

3. Make sure sediment is not spilling past the straw bale silt fences and flowing toward Lake Lowell

D. Purpose of Treatment Specifications: If water and sediment is impacting the road or moving into Lake Lowell, more silt fences are needed.

E. Treatment Effectiveness Monitoring Proposed: More silt fences may need to be constructed and water quality monitoring of Lake Lowell near impact areas will be needed.

II. LABOR, MATERIALS AND OTHER COST:

✍ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item):** **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
GS-6, 3 hrs/event x 6 events/yr x 13.72/hr x 3 yrs	740.00
TOTAL PERSONNEL SERVICE COST	740.00
✍ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item):** **Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST/ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
✍ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST/ITEM**
Misc. supplies (vehicle expenses, tools, stakes)	300.00
TOTAL MATERIALS AND SUPPLY COST	300.00
✍ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL TRAVEL COST	
✍ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04	Ea	150.00	6	900.00	BAR	p
FY_05	Ea	12.00	6	72.00	BAR	P
FY_06	Ea	12.00	6	72.00	BAR	P
FY__						
FY__						
TOTAL	**Ea**	**58.00**	**18**	**1,044.00**		

FUNDING SOURCE
F - Suppression Operations
BAR - Burned Area Rehabilitation
EWP - Emergency Watershed Protection
OP/O - Agency Operations/Other

METHODS
P - Agency Personnel Services
C - Contract (long-term)
EFC - Emergency Fire Contract (short-term)
FC - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	X
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within ESR Plan Accomplishment Report (for Rehabilitation treatments quote (include page number, approving officials name, and date approved for review and auditing purposes) pertinent passages from approved land management plans:

SPECIFICATION TITLE:	**WATER QUALITY MONITORING**	**AGENCY:**	FWS
PART E LINE ITEM:	# 3. Water Quality Monitoring ESR Reference #: 6.11 Monitoring	**FISCAL YEAR(S) (list each year):**	2004, 2005, 2006 Spec Type: ES

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description: If storm patrol shows runoff from the burned area is reaching Lake Lowell, then water quality monitoring in the Lake is needed.

B. Location/(Suitable) Sites: See locations on the watershed treatment map. Locations are immediately below three drainages.

C. Design/Construction Specifications:

1. Samples will be taken according to State of Idaho Department of Environmental Quality Protocols.

2. Samples will be taken after each major precipitation event that results in runoff reaching Lake Lowell.

3. Samples will be analyzed by a certified water laboratory for suspended solids, phosphorus, nitrogen and pH. Since Lake Lowell already has high levels, a control water sample will be taken at a point well away from the burned area.

D. Purpose of Treatment Specifications: To monitor for treatment effectiveness in reducing sediment and associated nitrogen and phosphorus from entering Lake Lowell and to determine if additional upslope treatments are necessary to reduce sediments and elements if monitoring shows an increase above state standards.

E. Treatment Effectiveness Monitoring Proposed: None needed**.**

II. LABOR, MATERIALS AND OTHER COST:

✍ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
GS-11, 1 hr x 6 events x 3 yrs x 26.94	484.92
TOTAL PERSONNEL SERVICE COST	484.92
✍ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST/ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
✍ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL MATERIALS AND SUPPLY COST	
✍ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL TRAVEL COST	
✍ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST/ITEM**
Certified Lab Analysis, @ $75.00/ sample x 4 samples x 6 events/.yr x 3 yrs	5,400.00
TOTAL CONTRACT COST	5,400.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04	Ea	490.41	4	1,961.64	BAR	P,C
FY_05	Ea	490.41	4	1,961.64	BAR	P,C
FY_06	Ea	490.41	4	1,961.64	BAR	P,C
FY__						
FY__						
TOTAL	**Ea**	**490.41**	**12**	**5,884.92**		

FUNDING SOURCE
F - Suppression Operations
BAR - Burned Area Rehabilitation
EWP - Emergency Watershed Protection
OP/O - Agency Operations/Other

METHODS
P - Agency Personnel Services
C - Contract (long-term)
EFC - Emergency Fire Contract (short-term)
FC - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	X
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	X
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within ESR Plan Accomplishment Report (for Rehabilitation treatments quote (include page number, approving officials name, and date approved for review and auditing purposes) pertinent passages from approved land management plans:

SPECIFICATION TITLE:	**REVEGETATION OF BURNED AREA**	**AGENCY:**	FWS
PART E LINE ITEM:	# 4. Revegetation ESR Reference #: 6.4.3 Revegetation	**FISCAL YEAR(S) (list each year):**	2004 Spec type: ES

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description: Revegetate areas by seeding to facilitate the natural succession of vegetative communities which will be subject to immediate and aggressive invasion by cheat grass.

B. Location/(Suitable) Sites: All 86 acres including fire lines will be seeded.

C. Design/Construction Specifications:

1. Seed Mixture Selection and Certification: The seed mixture for the Sage Fire was selected by the Refuge staff in concurrence with BAER team specialists and is based on pure live seed (PLS) rates. The seed mix should be tested for purity and germination rates by the Idaho State Seed Lab. Before accepting delivery of seed shipment, the contractor must provide written evidence (seed label and letter) to the Refuge manager that the seed conforms to the purity and germination requirements in the specification. Test method specified in Rules for Testing Seeds, Proceedings of the Association of Official Seed Analyst will be acceptable for determining the germination rate. Seed shall conform to specifications outlined within "Request for Formal Bid for Seed" contained in Appendix V. Seed mix is as follows:

Indian Ricegrass *Achmenoides hymenoides* (var. Nezpar)	3 lbs./acre PLS	10%
Great Basin wildrye *Leymus cinerieus* (var. Trailhead)	2.5 lbs./acre PLS	15%
Snake River wheatgrass *Pseudereigneria spicata* (var. Secar)	4 lbs./acre PLS	25%
Thickspike wheatgrass *Elymus lanceolatus* (var. Critana)	4 lbs./acre PLS	30%
Sand dropseed *Sporobolus Cryptandrus*	.3 lbs./acre PLS	10%
Needle and thread grass *Stipa comata*	2.5 lbs./acre PLS	10%
Basin Big sagebrush *Artemisia tridentata ssp. Tridentata*	.1 lbs./acre PLS	
Four wing salt bush *Atriplex canescens*	4 lbs./acre PLS	
Crested wheatgrass *Agropyron cristatum (var. Roadcrest)*	12 lbs./acre PLS	100%

2. Delivery: Deliver certified weed-free seed sold on pure live seed basis to Deer Flat National Wildlife Refuge, Nampa, Idaho, by October 15, 2003.
3. Storage: Seed should be applied as soon as possible after delivery. If immediate application is not possible, the seed should be stored under dry, cool conditions and protected from rodents. Seed also needs to be protected from rain.
4. Timing of Seeding Application: Seeding should occur in early to mid November at least 2 to 3 weeks after herbicide application.
5. Application Method: Seed must be drilled to achieve success. Rangeland drills can be borrowed from the BLM Vale Unit to other federal agencies for no charge. A contract will be written for an operator with experience and for a tractor with adequate horsepower to pull the drill.
6. Application Rate: Seed will be applied at the above rates, on a PLS basis.
7. Mulch: Certified weed-free wheat straw mulch should be applied immediately after seeding. The straw will need to be crimped in to prevent it from blowing away in the wind.
8. The crested wheat grass is meant to be seeded only on the calcareous inclusions—please see the Vegetation treatment map.

D. Purpose of Treatment Specifications: To protect water quality, maintain site productivity, reduce the risk of noxious weed invasion into the burned area and to facilitate the vegetative recovery to a native grassland.

E. Treatment Effectiveness Monitoring Proposed: Monitoring should be conducted to determine the relative establishment and effectiveness of seeding. Supplemental seeding requests may be warranted should monitoring determine that initial seed did not meet resource protection objectives.

II. LABOR, MATERIALS AND OTHER COST:

✍ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item):** **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
TOTAL PERSONNEL SERVICE COST	
✍ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item):** **Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST/ITEM**

TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	

✍ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST/ITEM**
Seed cost @ $150.00/acre PLS x 86 acres	17,200.00
Certified weed-free wheat straw mulch, @ 3.75/bale (FOB) x 25 bales/acre x 86 acres	8,062.50
TOTAL MATERIALS AND SUPPLY COST	25,262.50

✍ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL TRAVEL COST	

✍ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST/ITEM**
Tractor drilling with BLM rangeland drill @ 40 hours x $50/hour x 1 fiscal year	2,000.00
Straw mulch application @ $17/acre x 86 acres	1,462.00
TOTAL CONTRACT COST	3,462.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04	Acres	328.27	77	25,277.50	ES	C
FY_04_	Acres	383.00	9	3,447.00	F	C
FY__						
FY__						
FY__						
TOTAL	**Acres**	**334.00**	**86**	**28,724.50**		

FUNDING SOURCE
F - Suppression Operations
BAR - Burned Area Rehabilitation
EWP - Emergency Watershed Protection
OP/O - Agency Operations/Other

METHODS
P - Agency Personnel Services
C - Contract (long-term)
EFC - Emergency Fire Contract (short-term)
FC - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	X
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within ESR Plan Accomplishment Report (for Rehabilitation treatments quote (include page number, approving officials name, and date approved for review and auditing purposes) pertinent passages from approved land management plans: Funding for this project is broken out 90% ESR and 10% F because 10% of the burned area is fire lines which will be seeded at the same time as the rest of the area.

SPECIFICATION TITLE:	**MONITOR REVEGETATION AND SEEDING EFFECTIVENESS and INVASIVE WEEDS**	**AGENCY:**	FWS
PART E LINE ITEM:	# 5. Monitor Seeding Effectiveness and Invasive weeds ESR Reference #: 6.11 Monitoring	**FISCAL YEAR(S) (list each year):**	2004, 2005, 2006 Spec type: ES

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description: Conduct monitoring in the first year following seeding to determine success of seeding efforts.

B. Location/(Suitable) Sites: Establish monitoring transects within each of two seeding types plus a control area. Transect locations should be determined at random.

C. Design/Construction Specifications:

1. This specification can be accomplished through a contract with a university or others.
2. A minimum seedling establishment of 9-15 plants per square foot should be present in seeded areas. If seedling establishment does not meet this requirement then a second application of seed should be applied.
3. Sampling should determine species composition, root depth and area, plant height and vigor.
4. Count seedlings per square foot – seeded species/native species/total # and compare to seeding rate per square foot for treatment success.
5. Estimate root mass/square ft – pull plants on representative area, measure diameter of root wad.
6. Estimate effective root cover area due to grasses.
7. Sampling methodologies shall represent all plant community types, all aspects, and all slope variations within the seeded areas. Digital photos shall accompany data records as supporting documentation of findings.
8. Observations should be documented to record other factors such as surface erosion, noxious weeds, etc.
9. A final report shall be written documenting sampling methods, techniques, areas sampled and summary of findings. This report should be submitted with the Accomplishment Report at the conclusion of funding.
10. Only the first year's monitoring is requested—if results show additional treatment and monitoring is needed, then additional funding will be requested through an ESR update.

D. Purpose of Treatment Specifications: To ensure establishment of seeded species for water quality protection, prevention of noxious weed establishment, maintaining site productivity and conversion from cheat grass to native grassland.

E. Treatment Effectiveness Monitoring Proposed: See above **.**

II. LABOR, MATERIALS AND OTHER COST:

✍ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item):** **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
TOTAL PERSONNEL SERVICE COST	
✍ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item):** **Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST/ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
✍ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST/ITEM**
\$500.00	\$500.00
TOTAL MATERIALS AND SUPPLY COST	\$500.00
✍ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL TRAVEL COST	
	COST/ITEM

✍ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	
Monitoring 86 acres $1,200.00 for first year + 25% overhead	1,200.00
Monitoring 86 acres @ $1,000.00 for FY2005	1,000.00
Monitoring 86 acres @ $1,000.00 for FY2006	1,000.00
TOTAL CONTRACT COST	1,200.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04	Surveys	1,700.00	1	1,700.00	BAR	C
FY_05	Surveys	1,000.00	1	1,000.00	BAR	C
FY_06	Surveys	1,000.00	1	1,000.00	BAR	C
FY__						
FY__						
TOTAL	**Surveys**	**1,233.33**	**3**	**3,700.00**		

FUNDING SOURCE
F - Suppression Operations
BAR - Burned Area Rehabilitation
EWP - Emergency Watershed Protection
OP/O - Agency Operations/Other

METHODS
P - Agency Personnel Services
C - Contract (long-term)
EFC - Emergency Fire Contract (short-term)
FC - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	X
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

SPECIFICATION TITLE:	**NON-NATIVE INVASIVE PLANT CONTROL**	**AGENCY:**	FWS
PART E LINE ITEM:	# 6. Invasive plant control ESR Reference #: 6.4.1 Non-native Invasive Plant Control	**FISCAL YEAR(S) (list each year):**	2004 Spec. Type: ES

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description: To prevent or reduce the spread of undesirable non-native invasive plants, namely cheat grass, and to assist in establishment of native grasses.

B. Location/(Suitable) Sites: The entire 86 acres burned by the Sage Fire.

C. Design/Construction Specifications:

1. Control cheat grass in the fall prior to seeding.
2. Acreage is 86 acres on FWS.
3. Herbicide recommended to be used is Plateau.
4. The area to be sprayed should be posted for two weeks following treatment.
5. Winds in the area to be sprayed should be less than 3 miles per hour.
6. Applicator or person supervising the application should be state of Idaho certified.

D. Purpose of Treatment Specifications: To prevent or reduce the spread of non-native plants, reduce the competition for recovering native vegetation, and to promote the establishment of seeded vegetation.

E. Treatment Effectiveness Monitoring Proposed: See Monitor Seeding Effectiveness Specification.

II. LABOR, MATERIALS AND OTHER COST:

✍ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
TOTAL PERSONNEL SERVICE COST	
✍ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST/ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
✍ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL MATERIALS AND SUPPLY COST	
✍ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST/ITEM**
TOTAL TRAVEL COST	
✍ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST/ITEM**
Herbicide and spraying of 86 acres @ $13/acre + 1.25 gal. x $ 341/gal x 1	1,544.25
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04	Acres	17.96	86	1,544.25	BAR	C
FY_						
FY__						
FY__						
FY__						
TOTAL	**Acres**	**17.96**	**86**	**1,544.25**		

FUNDING SOURCE
F - Suppression Operations
BAR - Burned Area Rehabilitation
EWP - Emergency Watershed Protection
OP/O - Agency Operations/Other

METHODS
P - Agency Personnel Services
C - Contract (long-term)
EFC - Emergency Fire Contract (short-term)
FC - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	X
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within ESR Plan Accomplishment Report (for Rehabilitation treatments quote (include page number, approving officials name, and date approved for review and auditing purposes) pertinent passages from approved land management plans:

PART G - POST-REHABILITATION REQUIREMENT (non-9262 funding)

The following are post-rehabilitation, implementation, operation, maintenance, monitoring, and evaluation actions beyond three years to ensure the effectiveness of initial investments. Estimated annual cost and funding source is indicated.

Emergency Stabilization

1. Continue invasive species monitoring and control ($15,000 – OP/O).
2. Continue to monitor water quality in Lake Lowell whenever runoff from the burned area reaches the lake ($5,000 – OP/0).

Rehabilitation

1. Monitor vegetation recovery ($1,500.00 – OP/O).

PART H - CONSULTATIONS

U.S. Fish and Wildlife Service

Alison Beck-Haas, Fish and Wildlife Biologist, Snake River Basin Field Office, Boise, Idaho

Carla D. Burnside, Archaeologist, Malheur National Wildlife Refuge, Burns, Oregon

Todd Fenzl, Deputy Refuge Manager, Deer Flat National Wildlife Refuge, Nampa, Idaho

Elaine Johnson, Refuge Manager, Deer Flat National Wildlife Refuge, Nampa, Idaho

Bill Leenhouts, National BAER Coordinator, National Interagency Fire Center, Boise, Idaho

Lance Roberts, Fire Management Officer, Southeast Idaho National Wildlife Refuge Complex, Pocatello, Idaho

Bureau of Land Management

Mike Pellant, Ecologist, State Office, Boise, Idaho

State Historic Preservation Office

Susan Neitzel, Deputy State Historic Preservation Officer, Idaho State Historic Preservation Office, Boise, Idaho

APPENDIX I - ESR BURNED AREA ASSESSMENT REPORTS

- Soil & Watershed Damage Assessment Report
- Vegetation Damage Assessment Report
- Cultural Damage Assessment Report

SOIL AND WATERSHED DAMAGE ASSESSMENT REPORT – SAGE FIRE

I. OBJECTIVES

-Assess overall watershed changes caused by the fire, particularly those that pose substantial threats to human life, property and critical natural and cultural resources. This includes evaluating changes to soil conditions, hydrologic function, and watershed response to precipitation events.

-Identify the most critical soil and watershed areas and issues related to the Sage Fire based on increased flood potential, loss of soil resources, water quality impacts, and prescribe treatments to mitigate impacts and risks.

-Develop maps of burn severity and treatments, if necessary.

-Identify future monitoring needs.

II. ISSUES

-Risk to water quality of nearby Lake Lowell.

-Increased surface erosion from the upland slopes with associated loss of site productivity and sediment transport.

-Lack of adequate ground cover to protect the soil from wind and water erosion.

-Truncation of soil profile-loss of top and sub soil, exposing the salty C horizon.

III. OBERVATIONS

A. Background

Geology—Canyon County is in the Payette section of the Columbia Plateau Province. It consists of an upland plain of unconsolidated lacustrine (wind-laid) and fluviatile (water-worked) materials that has been dissected by the Snake and Boise Rivers. Basalt outcrops are present in the area on knolls and ridge-tops.

Soils—Within the Sage Fire burned area are three soil mapping units; Vickery-Marsing silt loams, 1 to 3% slopes, Vickery-Marsing silt loams, 3 to 7% slopes and Vickery-Marsing silt loams, 7 to 12% slopes. The slope breaks separate the low, moderate and severe erosion hazards

related to agricultural fields. Vickery soils are moderately deep to a calcareous duripan (hardpan) whereas the Marsing soils are moderately deep over sand and gravel. Gravel pits next to the burned area are in the Marsing soil units. Both soils have calcareous layers at 17 to 20 inches. Both soils have friable, silt loam surfaces and are very high in fertility. It is important that the soil survey notes that spots where surface soil has been removed through land smoothing or erosion occur within the Vickery-Marsing mapping units. There are several of these calcareous (salty) spots within the burned area where it will be very difficult to establish native grasses. Possibly the only grass with available seed that will tolerate these spots is the non-native crested wheat grass (Agropyon desertorum). Toward the top and sides of the burned sub watersheds, the soils are steeper and runoff will be rapid resulting in severe soil erosion. This means that there is a hazard of topsoil movement into channels and into Lake Lowell which is about 400 to 800 feet away from the bottom of the burned area.

Climate—Sage Fire climate is primarily continental, with some moderating effect due to maritime air flows. Elevation at the Refuge visitor center is 2,300 feet and annual precipitation is between 8 and 11 inches with more than two thirds coming as winter snow. During the summer, the climate is generally arid, with little rainfall between May and October. Temperatures range from minus 25 degrees to 110 degrees Fahrenheit. The growing season averages 6 months.

Hydrology—Lands within the burned area have maximum slopes of 7 to12% near the top and sides of three sub watersheds. These sub watersheds have defined channels that deliver directly into Lake Lowell which is 400 to 800 feet away. Channels are full of cans and other "public lands dump" materials that date from the 1950's. Rolls of rusty barbed wire and fire-killed trees are present in the channels. Drainages have short unburned strips (400 to 800 feet) between the burned area and the lake.

B. Reconnaissance Methodology

The purpose of a burned area assessment is to determine if the fire caused emergency watershed conditions and if there are values at risk from these conditions. If an emergency is not identified the assessment stops. If emergency conditions are found and values at risk are identified, then the magnitude and scope of the emergency is mapped and described, values at risk and resources to be protected are analyzed, and treatment prescriptions are developed to protect values at risk. Emergency watershed conditions include both hydrologic and soil factors; typically potential for surface soil erosion, channel erosion and deterioration of soil condition leading to a decline in soil productivity. Field visits and direct soil observations were conducted to identify the spatial distribution and extent of burn severity conditions. Burned area evaluation for the Sage Fire were; assessing fire-caused changes in soil properties and hydrologic function, determining aerial extent and strength of hydrophobic soil conditions, mapping burn severity, assessing conditions of sediment source areas and threats to human life and property from flood flows.

Burn Severity—This measure relates to effects of the fire on soil conditions and hydrologic function. Although burn severity is not primarily a reflection of fire effects on vegetation, vegetative conditions and pre fire vegetation density are indicators used to assess burn severity.

Site indicators used to evaluate and map burn severity include soil hydrophobicity (water

repellency), ash depth and color, size of residual fuels, soil texture and structure, and post fire effective ground cover. These criteria provide clues about fire residence time, depth of litter layer consumed, radiant heat throughout the litter layer and upper topsoil. Using these indicators, burned areas are mapped into three principle burn severity categories; high, medium and low. A category of "unburned" may be mapped separately if there are large unburned islands inside the burn perimeter.

In some cases there may be complete consumption of vegetation by fire with little effect on soil and watershed function. In general, the denser the pre fire vegetation and the longer the residence time, the more severe the effects the fire has on soil hydrologic function. For example, deep ash after a fire usually indicates a deeper litter layer prior to the fire, which generally supports longer residence times. Longer residence time promotes the formation of water repellent layers at or near the soil surface and loss of soil structural stability. The results are increased runoff and soil particle detachment by water and transport off-site (surface erosion). The presence of white ash can indicate a hotter fire and more complete consumption of organic matter. Powdery ash without identifiable remnants of twigs and leaf litter also indicates more complete consumption. Generally there is a close correlation between soil properties and the amount of heat experienced by the soil as well as the residence time of the heat in contact with the soil.

The burn severity map becomes a basis to predict the hydrologic response of soil as a result of the fire and the rate of natural revegetation of the site following the fire. Burn severity polygons are usually mapped in 30 to 40 acres units and may include areas of other burn severity, which are too small to segregate.

Soil Condition—Soil condition and hydrologic function are important components of healthy ecosystems. These can be affected by catastrophic wildfire. Catastrophic fires have the potential to impact the soil beyond the limits of natural variability, including reduced soil aggregate stability, reduced permeability, increased runoff and erosion and reduced organic matter and nutrient status. These combined effects can cause the runoff following a rain event to increase significantly; increasing the overland flow available to initiate soil erosion, either as sheet or rill erosion. The potential for erosion is highest on steeper slopes that burned with a high burn severity.

The soil processes most important to hydrologic function include infiltration and percolation. The fire effects on infiltration and percolation were evaluated by observing the changes in litter and duff, soil structure, destruction of fine and very fine roots in the surface horizon and development of hydrophobic soil surfaces. Changes in vegetative ground cover as affected by the fire were noted and compared to pre fire conditions. Stability and strength of surface soil structural aggregates were examined. Surface soils were examined for the presence of fine and very fine roots. Water repellency was evaluated by observing the depth and thickness of a water repellent horizon in surface soils where it exists, and the length of time a water drop remained beaded on the surface. Soils were assessed in the field to determine if there is an increase risk of erosion.

Formation of Hydrophobic Soil—Heat of a fire can cause the development of a hydrophobic

layer on or in the surface soil horizon. This occurs due to volatilization of organic matter that has high amounts of lignin and other waxy compounds. After the fire passes, the gasses cool to a waxy coating on soil particles. The effect is similar to putting wax on a car to cause water to bead up and run off. If the hydrophobic layer is thick or the degree of water repellency is strong, it can seriously inhibit infiltration of rainfall, increasing runoff and detachment of soil particles. Results can be increased flooding, erosion and sedimentation. Some soils can be significantly hydrophobic even without fire. Vegetation type, amount of organic matter and soil texture are the primary factors that determine whether or not soils will become hydrophobic. Sagebrush burns hot enough to create water repellent surface conditions but this feature is limited to the area immediately around the bush. Hydrophobicity is discontinuous in the Sage Fire burned area.

Soil Erosion Estimates—Soil erosion estimates were made using the Universal Soil Loss Equation (USLE) as used by the Natural Resource Conservation Service (once the Soil Conservation Service). The effects of fire and its burn severity were reflected in the values assigned to terms in the equation:
A=RxKxLSxCxP

The terms are as follows:

A	Estimated soil loss (tons/acre/yr)
R	Rainfall erosivity
K	Soil erodibility
LS	Slope factor
C	Cover factor—which changes due to fire
P	Conservation practice factor—which can change due to treatments

The R factor was based on the 2 year 6 hour rainfall for the area which is 0.6 inches. This is a mild storm and yields a low R of 0.10. The K factors were taken from the tables of soil properties provided by the NRCS. The LS factor was taken from the table of factors based on the median slope and estimated slope length for each soil map unit. The P factor was 1.00 to reflect conditions before any treatments.

The C factor is the term that is altered by the fire because the fire destroys part or all of the overstory, understory and surface cover of the soil. In this case we used a C factor of 0.36. This is a conservative estimate; based on a C factor of 0.45 for a burned sage brush site with poor soil condition, no live vegetation and no litter cover, as modified by an allowance for the fine root mat of 20 percent under 100 percent bare soil.

Watershed Response—Field observations within and down stream of the burn area were conducted to determine the potential for high runoff response. Channel features related to transport and deposition processes were noted, along with channel crossing and stream outlets. Observations included condition of vegetation and the volume of sediment stored in channels and on slopes that could be mobilized. Field reconnaissance included upland slope processes and potential for runoff contributions to Lake Lowell. Burn severity and changes in soil infiltration were considered. Selected Runoff Curve Number Tables from the SCS National Engineering Handbook were used to estimate changes in runoff conditions for the site. Runoff Curve Number 71 was selected for use based on herbaceous/grassland/shrub communities and hydrologic soil

group B. These group B soils are moderately deep with good infiltration rates. Post fire conditions of moderate burn severity but with high fire severity on vegetation suggest a Runoff Curve Number of 80.

C. Findings

Burn Severity—Field investigations of the size of fuels consumed, litter and duff consumption, ash color and depth, fine roots and soil structure were done. This field reconnaissance showed that in most places with accumulated litter, the fire left charred and blackened litter. This is an indicator of low residence time and a low degree of soil heating. Ash colors were predominantly black with only scattered patches of white ash where sagebrush and rabbit brush plants were completely consumed. Ash depths were generally shallow, about 1 inch. Short, charred grass stubble from cheat grass remained over a portion of the area. Fine roots in the surface soil were unburned and continued to bind the soil.

Based on these indicators, the fire was mapped all in the low burn severity class with inclusions of moderate severity where sage brush and rabbit brush was reduced to white ash. There were no areas of high burn severity.

Soil Condition—Soil characteristics were investigated at numerous points across the burned area with emphasis on the steeper slopes. Hydrophobicity (water repellency) was slight (15% to 20%) across the burned area. The slight hydrophobicity, including water beads that lasted for up to 10 seconds, occurred at the interface of the litter and the mineral soil in burned areas. No hydrophobicity was found at any depth below the mineral soil surface. The Marsing-Vickery silt loam, 7 to 12 % slopes mapping unit VmD has a severe erosion hazard when the surface is bare following a fire. Inclusions of Vickery silt loam with the upper soil horizons truncated due to erosion are present and runoff from these areas will be rapid leading to severe erosion. The spots are so salty (calcium carbonate) that native grasses will not grow on them without irrigation.

The presence of fine root mats was observed at many points. These root mats are closely tied to vegetation and particularly to cheat grass. Cheat grass and other grass roots survived the fire in condition to bind the soil. The density of the cheat grass varied depending on soil depth and pre fire grass cover. About 40% of the surface area has such a root mat.

Soil Erosion Estimates—Overall soil erosion rates from the burn area are expected to be low to moderate and within allowable ranges for the preservation of soil productivity except on the Mapping Unit VmD and the calcareous inclusions. Mapping Unit VmD with 7 to 12% slopes has a soil erosion of 0.84 tons/acre/year and the average for the burned area is 0.53 tons/acre/year based on the USLE method.

Watershed Response—The annual hydrologic cycle indicates probability of rainfall increases in November through March. Rainfall in this area is normally of low intensity with most precipitation events amounting to less than 0.25 inches. Soil erosion ratings are based on the 2-year, 6 hour rainfall event which amounts to 0.6 inch. This rain event has a 50% likelihood of occurring. Pre fire conditions produced little surface runoff from 0.6 inch of rain. Post fire conditions of bare soil and no evapotranspiration, according to Runoff Curve Number 80, will

begin to produce runoff under this rainfall amount. Larger precipitation events, such as warm rain on melting snow, could produce runoff with entrains soil particles, ash and debris. With increased runoff and sediment, the soils may not have the capacity to store this input. Flows which normally would infiltrate and dissipate, may now concentrate and cause a channel scour, increasing sediment loads. Small depressions in the landscape now serve as storage but they may not be large enough to handle any significant increase in runoff. With the increase in runoff and sediments, an increase in nitrogen and phosphorus from ash and soil most likely will occur. These elements and sediment pose a risk to water quality of Lake Lowell.

Values at Risk—Water quality in nearby Lake Lowell could be effected by sediment, nitrogen and phosphorus delivered by runoff from the burned area. Water quality in Lake Lowell is already an issue and additional nutrients reaching the lake could cause problems in nearby boat launch and swimming areas.

Soil loss from potential wind and water erosion could reduce the ability of the soil to support native plant life even further. This could result on cheat grass being the only thing that can survive on the soils. This is already the case on the calcareous inclusions—with the possible exception of crested wheat grass.

Two service roads and the paved road leading to the Visitor Center could be compromised by rills or could have mud and ash deposited on them by increased runoff.

IV. Recommendations

A. Management (emergency stabilization)

Specification # 1. Straw Bale Silt Fence - Situation: Three channels could run water carrying sediment and related nitrogen and phosphorus across roads. This could compromise the roads by cutting or by deposition of mud. Without treatment, flows could cross the roads and reach nearby Lake Lowell, thereby affecting water quality.

Recommendation: Construct straw bale sediment fences in identified runoff channels immediately up-slope from the roads. This will slow down water causing sediment loads to drop out. Roads will be protected and sediment will probably not reach Lake Lowell.

Specification # 2. Storm Patrol - Situation: Due to lack of vegetation on the burned sub watersheds, rainfalls over 0.5 inch may produce increased runoff. This runoff could carry enough soil and debris to fill the capacity behind the straw bale silt fences mentioned in Specification # 1. If this occurs, water and sediment could reach Lake Lowell as well as damage the roads.

Recommendation: Each morning employees will observe the straw bales to make sure they are not being compromised by runoff. If silt is building up behind the bales, then clean out is recommended. Silt must be end-hauled and dumped well away from runoff channels.
Specification # 3. Water Quality Monitoring - Situation: Changes in sediment, nitrogen, phosphorus and pH may occur to the water quality of Lake Lowell directly downstream from the burn area following rainfall events.

Recommendation: Water samples should be taken from Lake Lowell immediately below natural channels. This should occur following each rainfall event. If water quality is being affected, then additional straw bale silt fences should be constructed above the first ones to slow water down even more.

B. Management (non-specification related)

None

A. Rehabilitation Recommendations

See reseeding specifications.

V. Consultations

Elaine Johnson, Refuge Manager, Deer Flat NWR, U.S. Fish and Wildlife Service, Nampa, Idaho.

Todd Fenzl, Assistant Refuge Manager, Deer Flat NWR, U.S. Fish and Wildlife Service, Nampa, Idaho.

Lance Roberts, Fire Management Officer, U.S. Fish and Wildlife Service, Pocatello, Idaho.

Mike Pellant, Ecologist, Bureau of Land Management, State Office, Boise, Idaho.

VI. References

USDA Soil Conservation Service, 1976. Technical Release No. 16, Selected Runoff Tables for Curve Numbers.
USDA Soil Conservation Service, Agriculture Handbook 537, Predicting Rainfall Erosion Losses.
USDA Soil Conservation Service, Soil Survey of Canyon Area, Idaho, July 1972.
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USDI Fish and Wildlife Service, 1995. Deer Flat National Wildlife Refuge Management Plan, Nampa, Idaho.
USDI Fish and Wildlife Service, 2001, Deer Flat National Wildlife Refuge, Wildland Fire Management Plan.

W. Wayne Patton, Private Contractor, Hydrology and Soil Science

VEGETATION DAMAGE ASSESSMENT REPORT – SAGE FIRE

I. OBJECTIVES

-Evaluate and assess fire and suppression impacts to vegetative resources and identify values at risk associated with vegetative losses.

-Determine emergency stabilization and rehabilitation needs supported by specifications to aid in vegetative recovery and soil stabilization efforts.

-Provide management recommendations to assist in vegetative recovery, physical improvement repairs and species habitat protection and rehabilitation.

II. ISSUES

-Short and long-term fire impacts to plant communities and vegetation within the Sage Fire.

-Protection and enhancement of other resource values including site productivity, wildlife habitat and watershed stability.

-Management strategies for the conversion of cheat grass to a native grass and shrub ecosystem component.

-Management strategies which provide for the revegetation of impacted areas.

-Identification and early detection of noxious weed spread into fire areas.

III. OBERVATIONS

This report identifies and addresses known and potential impacts to vegetation within the Sage Fire on lands managed by FWS at Deer Flat National Wildlife Refuge. The burned area is 300 to 400 feet from Lake Lowell and even closer to the Visitor Center.

Reconnaissance of impacted areas was conducted using ground survey methods. This assessment captures the concerns expressed by FWS staff for the future management of these lands; will detail the known damage to the vegetation; will discuss revegetation needs and monitoring criteria; and outline management considerations for recovery.

A. Background

The Sage Fire spread rapidly because of erratic winds and extremely dry vegetation. Cheat grass was the primary carrier of the fire which impacted 86 acres. Resource concerns expressed by staff of the refuge include: vegetative loss and the short and long term impacts to site productivity, loss of wildlife habitat, and accelerated soil loss into Lake Lowell. In addition, concern was expressed about invasive species management and suppression impacts. Additional direction was obtained from the Deer Flat National Wildlife Refuge Management Plan, 1995.

The effected plant community within the fire area is the shrub/steppe association. Dominant vegetation includes: basin big sagebrush, spiny hopsage, rabbit brush, Indian rice grass, blue bunch wheat grass, great basin wild rye grass, Sandberg blue grass and Idaho fescue. Non-native plants now make up a major component in the plant community because of past fires, grazing and erosion. Some of these are: cheat grass, bulbous blue grass, crested wheat grass and Russian thistle (tumbleweed).

Elevation of the burned area is from 2,900 feet to 3,000 feet. Approximately 7 to 10 inches of precipitation occur annually, primarily in winter and mostly in the form of snow.

B. Reconnaissance Methodology and Results

Ground surveys were made to observe fire effect on vegetation, T and E species, noxious weeds and suppression impacts. During the surveys, vegetation losses were assessed, fire effects to vegetation was determined, and vegetative rehabilitation actions were analyzed. Ground reconnaissance included traversing affected areas and recording observations on plant community types, species composition, burn severity and impacts on vegetation and duff, topographic feature, noxious weed species, and fire suppression damage. Each vegetative issue will be discussed followed by treatment actions.

1. Vegetation

Due to extremely dry fuels and wind patterns during the Sage Fire, a significant amount of vegetative ground cover was lost within the shrub/steppe vegetation type during the incident. Cheat grass is a non-native grass and is highly flammable due to its complete summer drying, its fine structure and its tendency to accumulate litter. Due to its ability to produce massive amounts of seed, this grass will recover and will provide fuel for many fires in the future. It will also prevent native grasses from becoming established. Research has shown that following a late summer burning the next spring's cheat grass production may be reduced. Other grasses burned such as Indian rice grass and great basin wild rye, will also recover by the next growing season. Basin big sagebrush is readily killed when above ground plant parts are charred by fire. The plant does not re-sprout after fire.

2. Non-native Invasive Species

Noxious weeds within the fire area include Canada thistle and spotted knap weed. Cheat grass is a non-native as is Russian olive. Other weed species include Russian thistle and tumble mustard. Although many of these species were top-killed, they will recover by the next growing season.

3. Suppression Impacts

Hand lines and equipment-constructed lines are around the perimeter of the burned area. About one mile of line has yet to be seeded.

C. Findings

1. Vegetation

Emergency re-vegetation of the burned shrub/steppe type is needed to protect ecological integrity of the site. To keep natural succession on track, cheat grass must be controlled so seeded native grasses can germinate and survive.

2. Non-native Invasive Species

Noxious weeds within and adjacent to the burn are invaders into disturbed sites and will spread into the burned area. Non-native plant control for cheat grass will be followed by monitoring to determine seeding effectiveness. Monitoring may indicate the need for additional control, in which case an amendment will need to be submitted to obtain funding. Cheat grass control prior to seeding with native grasses will need to be done. Burned areas should be monitored for the next two years to identify any new weed occurrences. If weeds are found, treatment should be conducted.

3. Suppression Impacts

Fire lines need to be reseeded along with the rest of the burned area. Once drilling of seeds is accomplished, the evidence off-road tracks should be removed.

IV. Recommendations

Outlined below are the emergency stabilization and rehabilitation recommendations for fire suppression impacts and for emergency stabilization of the vegetation resource.

A. Fire Suppression Rehabilitation

Specification # 4, Revegetation – Refer to this specification under emergency stabilization. Fire lines will be seeded along with the entire burned area.

B. Emergency Stabilization

Specification # 4, Revegetation – The seeding will protect water quality, maintain site productivity, reduce the risk of weed invasion and facilitate the vegetative recovery to a native community. The proposed seed mix consists of:

Indian ricegrass *Achminoides hymenoides* (var. Nezpar)	3 lbs./acre PLS	10%
Great Basin wildrye *Leymus cinereus* (var. Trailhead)	2.5 lbs./acre PLS	15%
Snake River wheatgrass *Pseudoroegneria spicata* (var. Secar)	4 lbs./acre PLS	25%
Thickspike wheatgrass *Elymus lanceolatus* (vr.Critana)	4 lbs./acre PLS	30%
Sand dropseed *Sporobolus cryptandrus*	.3 lbs./acre PLS	10%
Needle and thread grass *Stipa comata*	2.5 lbs./acre PLS	10%

Basin Big sagebrush *Artemisia tridentata ssp. tridentata)* .1 lbs./acre PLS
Four-wing saltbush *Atriplex canescens* 4 lbs./acre PLS

On the calcareous inclusions, use the following seed:

Crested wheat grass *Agropyron cristatum* (var. Roadcrest) 12 lbs./acre PLS 100%

The seed must be certified noxious and invasive weed free and be tested prior to seeding by the Idaho Seed Lab for germination and noxious weed seed. The seed lab needs about 2 gallons of seed to run its tests. It is strongly suggested that the contract states that the vendor will be paid based on the results of the Idaho State Seed Lab testing and not on the tag analysis.

The seed must be drilled for the seeding to be successful. The BLM Vale, Oregon unit will loan a rangeland drill to the refuge at no cost. They will deliver and pick up the drill. A contract will need to be written for an operator with a tractor capable of pulling the drill and who has done this kind of seeding before. Call the operations group in the local BLM unit (Cindy Fritz) to obtain names of operators. Seeding should be done following the herbicide treatment as close to winter rain and snow as possible. Most years this seeding window is between November 1 and November 23. Following seeding, a mulch of weed-free straw or compost should be applied. If straw is used, it should be wheat straw rather than barley straw, and it should be crimped into the soil to prevent it from blowing away. The wheat grasses, wildrye and Indian rice grass should be planted about 1-1.5 inches with the sand dropseed and sage brush being a surface scatter. This seed can be dropped ahead of the discs and follow up chain. Be sure and ask for a drill that will accommodate these things.

C. Monitoring

Specification # 5, Monitor Seeding Effectiveness – This specification will determine the success of seeding efforts and identify areas of additional treatment. Funding for additional seeding treatments will need to be requested if the need is demonstrated. If less than 5 plants per square foot or less than 50% ground cover is found by the end of the second year, then additional revegetation should be done. Monitoring noxious weeds can be done simultaneously.

D. Management Recommendations (non-specification related)

Coordinate treatments to ensure proper application and success. For example the invasive plant control along with the seeding. Proper timing and staging is vital for success.

Immediately hire or assign an implementation coordinator to ensure timely application of treatments.

Specification #6, Invasive Plant Control – The purpose of this treatment is to prevent or reduce the spread of cheat grass and to assist in the reestablishment of native grasses. The recommended control method is spraying the herbicide Plateau in the early fall prior to seeding. Applications should follow the recommendations of BASF in the paper entitled “Control of Cheat grass after fire using Plateau”. Application should be done using a ground spray rig

mounted either on a pickup or a small four wheeler and only when wind-speeds are three miles per hour or less. Rates and timing are included in this paper. Herbicide applications will need to comply with agency approval authorities.

V. CONSULTATIONS

Elaine Johnson, Refuge Manager, Deer Flat NWR, U.S. Fish and Wildlife Service, Nampa, Idaho.

Todd Fenzl, Assistant Refuge Manager, Deer Flat NWR, U.S. Fish and Wildlife Service, Nampa, Idaho.

Mike Pellant, Ecologist, Bureau of Land Management, State Office, Boise, Idaho.

Warren Ririe, Range Conservationist, U.S. Forest Service, Boise National Forest, Boise, Idaho

VI. REFERENCES

Fire Effects Information System: www.fs.fed.us/database.feis

USDI, US Fish and Wildlife Service, Deer Flat National Wildlife Refuge Wildland Fire Management Plan.

USDI, US Fish and Wildlife Service, Deer Flat National Wildlife Refuge Management Plan.

Sagebrush Country, A Wildflower Sanctuary, Ronald J. Taylor, Mtn Press Publishing Co., 1991.

Weeds of the West, Western Society of Weed Science, 1991.

W. Wayne Patton, Private Consultant, Plant Materials Specialist (208) 377-4583

CULTURAL RESOURCE ASSESSMENT – SAGE FIRE

I. OBJECTIVES

-Assess potential damage to cultural resources for the purposes of recommending treatments to stabilize and rehabilitate archaeological sites from adverse effects following wildland fires, suppression activities, and rehabilitation projects.

-Conduct cultural resource inventory of land disturbance activities associated with the Sage Fire and recommend treatments of those sites adversely affected by suppression activities and rehabilitation projects in a manner that meets legal requirements.

II. ISSUES

-Possible impacts to prehistoric and historic resources resulting from fire suppression activities, proposed rehabilitation activities and fire effects.

-Possible impacts to previously unknown prehistoric and historic resources resulting from fire suppression activities, proposed rehabilitation activities and fire effects.

III. OBSERVATIONS

A. Background

Before settlement of the area by Euro-Americans, the area now under Lake Lowell was a low-lying region with many springs. Herds of deer and elk wintered in the area. Between 1906 and 1909 four earthen embankments were constructed to create the reservoir. Water diverted out of the Boise River via the New York Canal is used to fill the reservoir.

Outflows from the reservoir are used for irrigation. In the 1930's a Civilian Conservation Corps camp was established on the Refuge. Their main task was to face each of the four earthen embankments with stone. A Works Projects Administration crew also completed tasks at the refuge until the beginning of World War II.

A gravel pit located to the northeast of refuge headquarters was used as the county garbage dump for many years. Refuge staff have heard many stories about garbage being dumped on the refuge when people arrived after the dump was closed for the day. They would drive out into the sage brush west of the dump and put their garbage in ravines or next to the road.

Two tracks that travel through the burn area appear to have been used to access West Roosevelt Avenue from the lake before the refuge established formal access routes.

B. Reconnaissance Methodology and Results

A ground survey of hill tops and slopes less than 5% slope was accomplished in the burned area. A visual examination of all areas containing trash or can dumps was also made.

Conditions for finding possible historic sites were excellent because the vegetation had been burned and most of the ash had been either blown or washed away.

C. Findings

No prehistoric of historic resources were found. Garbage and sixteen can dumps (ranging from 30 to over 200 cans per dump) are strewn across the area, but do not contain items that are historic. Items included bed springs, barb wire, smooth wire, tires, paint cans, white gas cans, milk cans, sardine cans, Heinz ketchup bottles, window screens, vegetable and fruit cans, vaccine bottles with rubber caps, jars with screw tips, coffee cans, mason jars, tuna cans, a 1954 Idaho license plate, beer bottles, liquor bottles, hanger, Ponds cold cream jars and a thermos bottle.

IV. RECOMMENDATIONS

Cleanup of the trash can proceed. Likewise, watershed treatments can be constructed and grass seeding can proceed. Seeding will stay within the burn perimeter and all access will be along established roads and two-tracts running through the area. No monitoring is needed. No specifications are recommended.

V. CONSULTATIONS

Susan Neitzel, Deputy State Historic Preservation Officer, Idaho State Historic Preservation Office, Boise, Idaho.

Carla Burnside, Archeologist, Malheur NWR, U.S. Fish and Wildlife Service, Princeton, OR (541) 493-4236

THREATENED AND ENDANGERED SPECIES RESOURCE ASSESSMENT—SAGE FIRE

I. OBJECTIVES

-Identify and locate Threatened and Endangered (T and E) species impacted by the fire and/or suppression actions.

-Determine impacts of fire or proposed emergency stabilization or rehabilitation actions to T and E species and/or their habitat.

II. ISSUES

-Determine presence of T and E species within the burned area.

-Determine impacts of fire, its suppression, and proposed emergency stabilization or rehabilitation actions to T and E species and/or their habitat.

III. OBSERVATIONS

This assessment addresses potential T and E species that may be in the area of the Deer Flat National Wildlife Refuge. It also identifies and addresses potential impacts of the fire, its suppression, and proposed rehabilitation actions within the 86 acre burned area. Initial discussions with Elaine Johnson, Refuge Manager, and with Alison Beck-Haas, FWS, Snake River Field Office, indicated that no T and E species are present within the Sage Fire burned area.

A. Background

The Sage Fire burned 86 acres within only one vegetation type, the shrub-steppe community. Plants present include basin big sagebrush, spiny hopsage, rabbitbrush, four-wing salt bush, Indian ricegrass, Sandberg bluegrass, sand dropseed, crested wheatgrass, bluebunch wheatgrass, Idaho fescue, needle and thread grass, three awn, cheat grass brome, purple aster, penstemon, tumble mustard, and tumble weed.

Elevation within the burned area ranges from 2,900 to 3,000 feet. Approximately 7 to 10 inches of precipitation occur annually, primarily in winter and mostly in the form of snow. Farms and private property surround the burned area to the north and Lake Lowell is to the south. Refuge lands have been an important wintering area for waterfowl such as Canada geese, mallards, gadwall, red heads and ruddy ducks. Other species include ring-necked pheasants, California quail, mourning doves, yellow-bellied marmots, mule deer, white tail deer, muskrat, beaver, weasels, coyotes and raccoons.

B. Findings

The emergency rehabilitation activities proposed in this plan will hold soils on the slopes, protect water quality, revegetate burned sub watersheds, treat non-native invasive plants, and seed the burned areas with native grasses.

IV. RECOMMENDATIONS

No treatments are recommended.

V. CONSULTATIONS

Elaine Johnson, Refuge Manager, Deer Flat NWR, U S Fish and Wildlife Service, Nampa, Idaho.

Todd Fenzl, Assistant Refuge Manager, Deer Flat NWR, U S Fish and Wildlife Service, Nampa, Idaho.

Alison Beck-Haas, Fish and Wildlife Biologist, Snake River Basin Field Office, U.S. Fish and Wildlife Service, Boise, Idaho

VI. REFERENCES

W. Wayne Patton , private consultant	208-377-4583
Elaine Johnson, Refuge Manager, Deer Flat NWR	208-467-9278

APPENDIX II - ENVIRONMENTAL COMPLIANCE

Federal, State, and Private Lands Environmental Compliance Responsibilities

All projects proposed in the Sage Fire Burned Area ESR Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Department of Interior Manual part 516, and U.S. Fish and Wildlife Service, NEPA guidelines part 516 DM 6, Appendix 1. This Appendix documents the ESR Team considerations of NEPA compliance requirements for prescribed rehabilitation and monitoring actions described in this plan for all jurisdictions affected by the Sage Fire.

Related Plans and Cumulative Impact Analysis

The Management Plan for Deer Flat National Wildlife Refuge was reviewed and it was determined that actions proposed in the Sage Fire ESR Plan are consistent with the management objectives established in the plan. The Management Plan's NEPA compliance process specifically addresses:

- Vegetation
- Wildlife habitat
- Goals and Objectives for the Refuge

Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The emergency protection and rehabilitation treatments for areas affected by the Sage Fire, as proposed in the Sage Fire ESR Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

Applicable and Relevant Categorical Exclusions

The individual actions proposed for the Sage Fire emergency stabilization and rehabilitation are Categorically Excluded from further environmental analysis as provided for in the Department of the Interior Manual Part 516 and 516 DM 2, Appendix 1 and Appendix 2, and 516 DM 6, Appendix 1. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Department exceptions 516 DM 2.3 do not apply to any of the individual actions proposed. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the ESR Team and documented in Section E below.

Applicable Department and U.S Fish and Wildlife Service Categorical Exclusions

516 DM 2 app. 1, 1.6	Non-destructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research and monitoring activities.

516 DM 6, app. 1.4 B (3)	The construction of new, or the addition of, small structures or improvement, including structure and improvements for the restoration of native habitats, which result in no or only minor changes in the use of the affected local area. The following are examples of activities that may be included: The construction of small water control structures, the planting of seeds or seedlings and other minor revegeatation actions, and the construction of small berms or dikes
516 DM 6 app. 1.4 B (5)	Fire management activities, including prevention and restoration measures, when conducted in accordance with departmental and Service procedures.

Statement of Compliance for the Sage Fire Burned Area Emergency Stabilization and Rehabilitation Plan.

This section documents consideration given to the requirements of specific environmental laws in the development of the Sage Fire ESR Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Sage Fire ESR Plan:

- National Historic Preservation Art (NHPA).
- Executive Order ll988. Floodplain Management.
- Executive Order 11990. Protection of Wetlands.
- Executive Order 12372. Intergovernmental Review.
- Executive Order 12892. Federal Actions to Address Environmental Justice in Minority and Low-income Populations.
- Endangered Species Act.
- Secretarial Order 3127. Federal Contaminated
- Clean Water Act.
- Clean Air Act.

CONSULTATIONS

NEPA Checklist: If any of the following exception applies, the ESR Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes)	(No)	
( )	(X)	Adversely affect Public Health and Safety
( )	(X)	Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
( )	(X)	Have highly controversial environmental effects.
( )	(X)	Have highly uncertain environmental effects or involve unique or unknown environmental risks.
( )	(X)	Establish a precedent resulting in significant environmental effects.
( )	(X)	Relates to other actions with individually insignificant but cumulatively significant environmental effect
( )	(X)	Adversely effects properties listed or eligible for listing in the National Register of Historic Places.
( )	(X)	Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
( )	(X)	Threaten to violate any laws or requirements imposed for the "protection of the environment" such as Executive Order 1 1 988 (Floodplain Management) or Executive Order 11990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

(X)	None
( )	Ground disturbance did occur and an archeologist survey, required under section 110 of the NHPA will be prepared. A report will be prepared under contract as specified by the ESR Plan.

A NHPA Clearance Form:

( )	Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I).
(X)	Is not required because the ESR Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes)	(No)	
( )	(X)	Does the ESR Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
(X)	( )	Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted and they have been.

I have reviewed the proposals in the Sage Fire Burned Area Emergency Stabilization and Rehabilitation Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore, it is categorically excluded from further environmental (NEPA) review and documentation. ESR Team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

ESR Team Environmental Protection Specialist Date

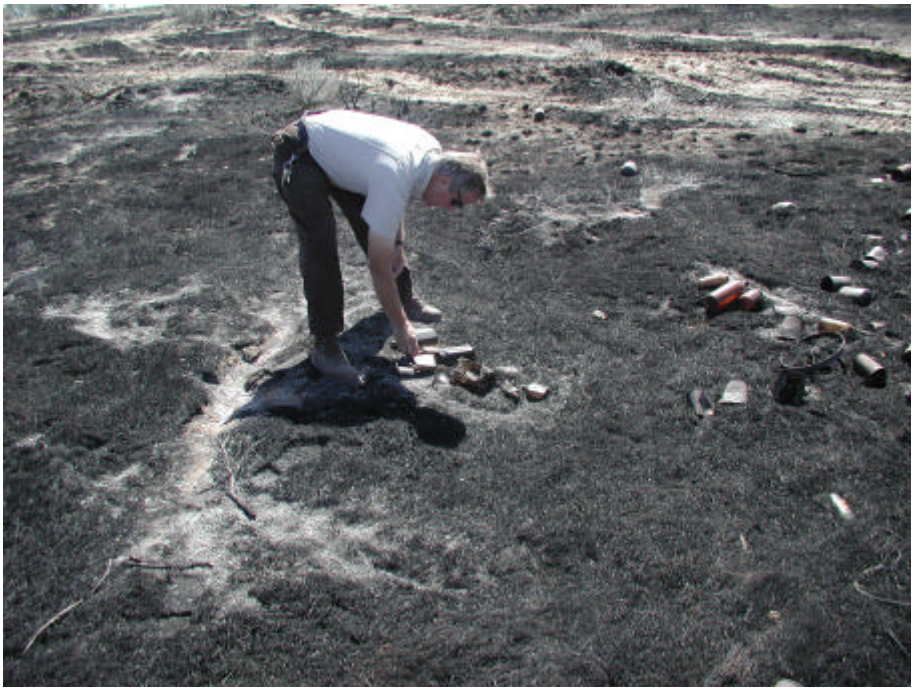
Refuge Manager, Deer Flat National Wildlife Refuge Date

APPENDIX III - MAPS

- Fire perimeter and photo points
- Soil groups
- Soils – calcarious inclusions
- Vegetation restoration

APPENDIX IV - PHOTO DOCUMENTATION

General view of the Sage Fire looking south toward Lake Lowell. Note patches of white ash where soils are water repellent.



The Sage Fire exposed garbage dumped during the 1950's.

Sage Fire boundary showing the plow line used to control the fire along with tracks left by fire fighting vehicles.

There is no culvert under the paved road leading to the Visitor Center where a sub watershed channel is located. Straw bale silt fences are proposed at this location

Team Leader and Refuge Manager discuss rehabilitation plans.

View from the top of one of the sub watersheds looking south. This shows the proximity of the burn to Lake Lowell. This area will be re-seeded with native plants.

APPENDIX V - SUPPORT DOCUMENTS

USDI Fish and Wildlife Service, Wildland Fire Management Plan, Deer Flat National Wildlife Refuge, 2001.

Fire Report, Sage Fire, 7/6/2003, Captain Tim Atwood, Nampa Fire Department.

USDI Fish and Wildlife Service, Deer Flat National Wildlife Refuge Management Plan, 1995.

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USDI Fish and Wildlife Service, Oster Lake Fire Burned Area Emergency Stabilization & Rehabilitation Plan, Hagerman National Fish Hatchery and Wildlife Management Area, Gooding, Idaho 8/21/2001.

Sage Fire Rehabilitation and Cleanup Project, Section 196 Cultural Resources Survey Report, USDI Fish and Wildlife Service, Carla Burnside, 7/28/2003.

USDI Manual Part 516 and 516 DM 2, Appendix 1 and 516 DM 6, Appendix 1.4., Categorical Exclusions.